IN THE SPECIFICATION:

Page 1, first and second paragraphs, please amend as follows:

BACKGROUND OF THE INVENTION

1. Field of the invention

The technical field of this invention is that of sealing bands for projectiles and especially for ~~sub-calibre~~ sub-caliber projectiles.

2. Description of the related art

Projectile bands have ~~for~~ as an objective to provide during firing a seal to propellant gases between the wall of the barrel of the weapon and the projectile. These bands are usually placed in a surrounding groove of the projectile and, to provide such a seal, they are always slightly ~~over-calibre~~ over-caliber (by approximately 10%).

Page 1, paragraph 4 to Page 2, line 2, please amend as follows:

Attempts are in fact made to develop ~~sub-calibre~~ sub-caliber projectiles with ~~always~~ ever increasing performance characteristics, i.e. with the greatest initial velocity possible (today this velocity is of the order of 1,800m/s). Several types of bands have been developed for such ~~sub-calibre~~ sub-caliber projectiles.

According to established practice, ~~sub-calibre~~ sub-caliber projectiles consist of a ~~sub-calibre~~ sub-caliber (penetrator) core held by a ~~calibre~~ cabliber sabot. The sabot is made of several segments (generally three) and releases the core upon exiting the weapon's barrel. The sabot usually has a sealing band positioned in a groove located on one section of the ~~calibre~~ caliber sabot, a section usually called "pusher plate" since it is there that the propellant gases exert pressure.

European Patent EP307307 describes therefore a sealing band comprising a rear skirt attached to the cartridge casing, ~~and~~ which provides during firing a low-pressure seal (pressure of

the order of a few ~~Mega~~ mega Pascal) and a front flange positioned in a groove of the projectile to ensure, ~~alike~~ like a classical sealing band, a high-pressure seal (pressure of the order of several hundreds of ~~Mega~~ mega Pascal).

Page 2, line 13, please amend as follows:

Such a device offers, however, some disadvantages.

Page 2, lines 25-29, please amend as follows:

In order to further increase the velocity of projectiles, so-called "tractor" sabots have been developed, namely those ~~for which~~ wherein the pusher plate is located ~~to~~ toward the front of the projectile.

Page 2, line 33 to Page 3, line 28, please amend as follows:

However such a projectile should be fitted inside the barrel of the weapon, which compels the band to have a diameter inferior to the ~~calibre~~ caliber to be fitted. Such an arrangement is detrimental to the sealing property due to a ~~sub-calibre~~ sub-caliber band. If on the contrary, an ~~over-calibre~~ over-caliber band is used, it becomes difficult, ~~see~~ or impossible to position the projectile due to induced friction.

Also, the guiding of such projectiles in the barrel is difficult to secure, and it is most often necessary to use ribs with a ~~calibre~~ caliber extending to the back of the pusher plate. Such ribs hinder the sealing band assembly, which is most often fitted by hot deformation.

SUMMARY OF THE INVENTION

It is the purpose of this invention to provide a sealing band, which does not present such drawbacks.

In this way, the band according to the invention allows for a good quality seal even inside worn barrels, whilst being easy to fit on the projectile.

The band, according to the invention, also allows for the assembly of ~~sub-calibre~~ sub-caliber projectiles of the tractor type, thus with a light sabot, whilst ensuring, however, an excellent level of sealing ~~and~~ without creating difficulties in terms of the positioning of the projectile.

The object of this invention is therefore a sealing band for a projectile, the band being ~~characterised~~ characterized in that it comprises a front sub-band containing at least two sectors, the sub-band having at least a conical profile in a tight fit with the matching profile of a groove of the projectile, the cone tip being placed towards a rear section of the projectile, with the sub-band attached to the projectile by a cylindrical skirt.

The skirt will be able to have on its internal surface ~~the~~ means to allow its friction-type connection with the sub-band.

Page 3, lines 34 and 35, please amen as follows:

The skirt will be able to have a length between 50% and 80% of the ~~calibre~~ caliber.

Page 3, line 36 to Page 4, line 5, please amend as follows:

According to a characteristic, each sub-band sector will be able to have at the level of each of its lateral edges at least one indentation aimed at having a tight fit with one corresponding indentation of a ~~neighbouring~~ neighboring sector so as to form a sealing deflecting plate for the propellant gases.

Page 4, lines 6 to 20, please amend as follows:

According to a specific embodiment, the sealing band will be able to be of ~~sub-calibre~~ sub-caliber at least at the level of a front section.

The object of the invention is also a ~~sub-calibre~~ sub-caliber projectile equipped with such a band, the projectile comprising a tractor type sabot and with barrel guiding characteristics as well as improved sealing properties.

Thus the arrow projectile according to the invention comprises a ~~sub-calibre~~ sub-caliber core held by a sabot with a ~~calibre~~ caliber made of at least two segments, this projectile has a band ~~consisting of~~ comprising a sub-band and it is ~~characterised~~ characterized in that the sabot has a pusher plate located axially before the transversal plane passing through the gravity ~~centre~~ center of the complete projectile, the pusher plate containing at least one groove for the sub-band to fit in.

Page 4, lines 24 and 25, please amend as follows:

Each segment of the sabot will be able to have a rear ~~calibre~~ caliber guiding support.

Page 4, line 31 to Page 5, line 2, please amend as follows:

The skirt of the band should advantageously be ~~over-calibre~~ over-caliber at the level of a rear section.

The object of the invention is finally an ammunition associated with such a projectile.

This ammunition ~~consists of~~ comprises a casing enclosing a propellant charge and including a projectile, the ammunition is ~~characterised~~ characterized in that the skirt of the band is attached to a fastening ring fixed at the casing.

Page 5, line 5 to line 34, please amend as follows:

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will become more apparent from reading the following description of the various embodiments, with reference to the appended drawings in which:

[-]Fig. 1a shows a partial longitudinal cross-sectional view of a projectile equipped with a band according to the invention,

[-]Fig. 1b is a magnified view of the sub-band and its fastening onto the sabot,

[-]Fig. 2 is a transverse cross-sectional view of this projectile along line AA as indicated in Fig. 1,

[-]Fig. 3 is a detailed view of the band, where the skirt was removed, showing indentations at the level of the lateral edges of two sub-band sectors,

[-]Fig. 4 shows a variant of the embodiment for the band,

[-]Fig. 5 shows a longitudinal cross-sectional view of a projectile and ammunition according to a first embodiment of the invention, the projectile being shown positioned in a weapon barrel,

[-]Fig. 6 shows a longitudinal cross-sectional view of a projectile and ammunition according to a second embodiment of the invention, and

[-]Fig. 7 is a transverse cross-sectional view of the projectile according to this second embodiment, the cross-section along line BB as indicated in Fig. 6.

DETAILED DESCRIPTION OF PREFERRED EMBODIMENTS

Referring to Figs. 1a and 1b, a projectile 1, which is in this case a ~~sub-calibre~~ sub-caliber projectile ~~stabilised~~ stabilized by a tail (or arrow projectile), ~~consists of~~ comprises a sabot 3 comprising at least two segments (in this case three segments) surrounding a core 4. The projectile 1 is attached to a combustible cartridge casing 2 via a fastening ring 5.

Page 6, line 10 to line 13, please amend as follows:

The skirt has preferably a length between 50% and 80% of the ~~calibre~~ caliber, namely 60 to 100 mm for a projectile of 120mm ~~calibre~~ caliber. Such a length is essentially twice that of classical bands.

Page 6, line 33 to Page 7, line 3, please amend as follows:

As especially clearly shown in Fig. 3, each sector 11a, 11b, 11c from the sub-band 11 has at the level of each one of its lateral edges at least an indentation 16 designed to fit tightly with a matching indentation 17 from a ~~neighbouring~~ neighboring sector so as to build a deflecting plate 18 and provide a seal to propellant gases. A gap is provided at the level of each indentation between the two sectors, this gap being filled with a flexible sealing material 19, for example silicone.

Page 7, line 8 to line 14, please amend as follows:

As shown in Fig. 2, the deflecting plates 18 separating the various sectors 11a, 11b and 11c from the sub-band 11 are placed in a staggered manner with the parting lines 22 separating segments 3a, 3b and 3c of the sabot 3. Such an arrangement has for an objective to improve the seal by avoiding weakness points, which could facilitate the passage of gases within the parting line.

Page 7, line 19 to line 30, please amend as follows:

The band assembly is made easier by the band subdivision in a sub-band 11 and a skirt 12. The large sectors of the sub-band are easily fitted without requiring deformation. The silicone joints are placed to ensure a temporary fastening between the sub-band and the projectile. The thin skirt 12 is then inserted by sliding around the projectile and makes a complete, tight fit with the various sections of the band. The skirt can be easily

fitted without prior expansion. The assembly is therefore carried out completely cold, which is more economical and ensures improved reproducibility of the band's mechanical characteristics.

The ~~operating~~ operation of this band is as follows :

Page 7, line 37 to Page 8, line 14, please amend as follows:

The gas pressure also pushes axially on the sub-band 11, which, thanks to the conical profiles 13 and 14, gets in turn radially pulled apart from the sabot 3 and is pushed onto the wall of the barrel. The division of the sub-band 11 in three sectors ~~favours~~ favors this pulling-apart.

The seal remains, however, secured thanks to the plates 18 and the sealing material fillers 20 and 19, which allow for such a displacement of sectors 11a, 11b, and 11c.

The skirt 12 is sufficiently thin (~~i~~non the order of one ~~millimetre~~ millimeter) and flexible to allow ~~for~~ the sectors of the sub-band 11 to be pulled apart.

Upon exiting the weapon's barrel, the aerodynamic ~~efforts~~ forces pull apart the segments 3a, 3b and 3c of the sabot, and the thin skirt 12 easily ruptures. The sub-band 11, which is subdivided in sectors, does not hinder the sabot/core separation.

Page 9, lines 7 to line 11, please amend as follows:

A layer of a flexible material 20, such as silicone resin, is fitted after assembly at the rear section of the collar 35, and between the collar and the sabot 3. This material also fits into the sub-band 11 and allows for an improved seal ~~to~~ against propellant gases.

Page 9, line 15 to line 17, please amend as follows:

The band, according to the invention, has been described here as adapted to a ~~sub-calibre~~ sub-caliber projectile. It is obviously possible to fit it onto a full ~~calibre~~ caliber projectile.

Page 9, line 25 to line 31, please amend as follows:

The structural characteristics of the band according to the invention ~~allows for~~ allow the ~~sub-calibre~~ sub-caliber to be recovered from the time of firing, providing thus a gas seal.

A slight ~~over-calibre~~ over-caliber for the skirt 12 of the band will also be possible at the level of its rear section 9b (see Fig. 1a). Such an arrangement allows for an improved low-pressure seal at the beginning of the powder combustion.

Page 9, line 34 to Page 10, line 36, please amend as follows:

This ammunition ~~consists of,~~ comprises other than the projectile 1, a combustible casing 2 closed at the level of its rear section by an ~~obturating~~ obtruding plug 23 carrying an ~~igniter~~ igniter barrel 24. The casing encloses a propellant charge (not shown here).

In compliance with the invention, the projectile 1 comprises a sabot 3, with its pusher plate PP (part with a groove for the sub-band 11 to fit in) located axially in the front of a transverse median line PM that is the orthogonal plane to core 4 and across the gravity ~~centre~~ center for the complete projectile.

This sabot is of the tractor type. As shown in Fig. 5, the projectile 1 is inserted inside the barrel 25 of the weapon 26. The fastening ring 5 is held against the forcing cone 27, which links the barrel 25 to the chamber 28.

As previously explained, the setting up of the ammunition has been carried out without trouble thanks to the ~~sub-calibre~~ sub-

caliber of the band 9. The gas seal will be ensured thanks to the band structure.

The internal volume 29 delimited by the skirt 12 contains a part of the propellant charge. The initial projectile velocity is increased in this way. The volume of additional powder therefore available is ~~in~~ on the order of 0.5 to 0.8 ~~litres~~liters for a 120 mm ~~calibre~~ caliber. This results in an increase in the initial velocity ~~in~~ on the order of 4 to 5%.

Such a performance increase is added to the performance resulting from a mass gain due to the tractor-type sabot technology. It can be confirmed by calculation that the optimum mass gain for a 120 mm ~~calibre~~ caliber sabot is obtained by moving the pusher plate about 80 mm forward from its usual position at the level of the forcing cone. This results in a lightening of the sabot by 15 to 20% for a similar manufacturing cost.

According to the first embodiment of the projectile of the invention, each segment of the sabot 3 also comprises a ~~calibre~~ caliber rear support 30. Such an arrangement allows for improved projectile guidance inside the weapon's barrel.

Guidance of the projectile 1 is thus ensured by the pusher plate alone for the first ~~centimetres~~ centimeters, then by the pusher plate and the supports 30 on the most part of the barrel.